ATTACHMENT A

CV of Richard Hooper, Ph.D., P.E.

RICHARD HOOPER, Ph.D., P.E.
1102 Bowie Rd
Austin, Texas 78733
(512) 699-6487

SUMMARY

- Expertise in automation, instrumentation, electro-mechanical systems and software
- Technical architect of multi-million dollar projects with Fortune 500 companies and Federal agencies including: Whirlpool, Michelin, Merck, NASA and the US DOE
- Principal Engineer at AAI, Inc.
- Former Chief Scientist of the Robotics Research Group at the University of Texas
- Former Principal Engineer at Eaton Corporation
- Over twenty years of industrial and research experience in highly technical environments
- Author on over twenty-five technical publications and government reports
- Author and architect of five copyrighted software systems

EDUCATION

PhD – Robotics and Automation, The University of Texas at Austin; 1994
MSME – Biomedical Engineering, The University of Texas at Austin; 1991
BSEE – Biomedical Instrumentation and Computer Engineering, Rice University; 1985

AWARDS AND PROFESSIONAL

NASA Certificate of Merit, Judge R&D Magazine Top 100 Developments, C. Rowe Fellow, Tau Beta Pi, IEEE Division X Professional Activities Chairman, Registered Professional Engineer

COMPUTER

Oracle, SQL Server, SQL, C/C++, C#, Java, ASP, ASP.net, VB, Windows, Unix, Ladder Logic, RSLogix, CX Programmer

EMPLOYMENT HISTORY

AAI, Inc: Austin, Texas August 2004 - Present
Principal Engineer

- Ultimate responsibility for technical success of projects
- Responsible for electrical, mechanical and software engineering design
- AAI products include unmanned aircraft and ground control technologies; high-fidelity simulation systems; and automated test and measurement equipment

SafeMachines, PLLC: Austin, Texas October 2003 – Present
Founder and President

- Company formed to provide engineering consulting and forensic support services
- Customers include Image Microsystems, Prime Designs and Linear Technologies
- SafeMachines specializes in computer controlled machines

Fusion Technologies; Austin, Texas October 2003 – August 2004

Senior Architect

- Technical lead of team starting Austin office for this ten year-old consulting company
- Set strategies, goals and milestones for office
- Grew office from zero to six customers in first nine months

Trilogy Development Group; Austin, Texas November 1998 – Oct. 2003

Technical Delivery Owner

- Primary owner of technical delivery at all Fortune 500 pricing customers
- Delivered customer success at Whirlpool, Michelin, Eaton and Merck
- Optimized query structure for 100X performance improvement at Michelin
- Lead consultant on team that founded Trilogy's support organization

Senior Developer

- Inventor and architect of Incentive Program Manager application
  - Led team of developers producing application
  - Created and managed budget and timeline for the application development
- Designed database structure for query optimization of very large (>10^8 rows) tables
- Invented patent-pending algorithm for transaction and promotion calculations
- Lead developer for contract and pricing management applications

Eaton SEO; Austin, Texas April 1997 – November 1998

Principal Engineer

- Led team of software, mechanical and electrical engineers as manager of major machine productivity project
- Designed a 3-axis electronic controller with electrical isolation, analog electronics, A/D, D/A and digital electronics
- Solved a complex resonance problem that had plagued the primary product line for years
- Robotics lead on 300mm product development

The Robotics Research Group; Austin, Texas January 1994 – April 1997

Deputy Director

- Managed multi-million dollar projects with the Department of Energy and NASA
- Managed 30+ graduate engineers
- Managed 16,000 sq. ft. laboratory with clean room, metrology and two-story high bay

Chief Scientist

- Conducted independent research with more than $1.25 million in research funds
- Developed advanced software for fault-tolerant control, operation in radiation fields, tool performance relationships, man/machine interfaces, real time optimization, servo motion control and PLC-based systems
- Developed hardware and software for a 2-axis motion controller
- Developed 5-axis motion controller for AC motors
- Taught robotics & automation, instrumentation and technical writing courses

- Guest lecturer at ITESM University in Mexico City, Mexico and The Institute For Robotics in Dortmund, Germany

Electro Cube Inc.; Los Angeles, California May 1986 – September 1987
Electrical Engineer

- Designed an instrument that measured current on the order of 10^{-9} amps and included an auto-calibration circuit
- Designed a tuned-oscillating electronic ballast for fluorescent tubes on aircraft
- Supported production machinery

Platt-Hardin Inc.; Houston, Texas May 1985 – May 1986
Electrical Engineer

- Designed and supervised the manufacture of synchronous motor controllers for the City of Houston
- Designed and developed a temperature controller for a heat-treating oven
- Supported production equipment

Methodist Hospital; Houston, Texas May 1984 – August 1984
Instrumentation Engineer

- Designed instrument for inducing pressure changes during balloon angioplasty
- Assisted development of instruments for measuring blood flow using ultrasound

TECHNICAL PUBLICATIONS

R. Hooper, D. Shuffield, K. Merchant, D. Savage. "Common RF Test Platform." IEEE Autotestcon 2011. September 12, 2011.

R. Hooper. "Optimal Switching Architecture for Automated Test Equipment." IEEE Autotestcon 2011. September 12, 2011.

R. Hooper and D. Tesar. "Robotic Systems Safety." The Next Wave of Technology Workshop. August 30, 2010.

R. Hooper, W. Guy, R. Perrault. "A Current-Controlled Variable Inductor." IEEE Autotestcon 2010. September 13, 2010.

"R. Paulson, R. Hooper. "nvSRAM Improves Robotic System Safety." Industrial Embedded Systems, Volume 3, Number 2, 2007, Pages: 24-30.

C. Cocca, D. Cox, D. Tesar, R. Hooper. "Failure Recovery in Redundant Serial Manipulators." Proceedings of The World Automation Conference 2000 (WAC 2000). June, 2000.

R. Hooper. "A Simulated Annealing Optimization Algorithm Implemented Within an Operator-Assist Interface." IEEE International Conference on Robotics and Automation, Volume 1, 1997, Pages: 656 – 661.

R. Hooper, M. Noakes. "Kinematic Control Models for Teleoperation of Redundant Robots." American Nuclear Society Seventh Topical Meeting on Robotics and Remote Systems. April, 1997, Augusta, Georgia.

R. Hooper. "Using Telescience to Share NASA Resources During the Classroom Study of a Mars Sample and Return Mission." 1997 ASEE/GSW Annual Conference, March 1997, Houston, Texas.

D. Tesar, R. Hooper. "Summary Report – Fault Tolerant Robotic Architectures and Adaptive Control." NASA Grant Number NAGG-411, April 1997.

M. Pryor, C. Kapoor, R. Hooper, D. Tesar. "A Reusable Software Architecture for Manual Controller Integration." IEEE International Conference on Robotics and Automation, 1997.

R. Hooper, C. Kapoor. "Motion Coordination for Redundant Robots by Tracking Position-Level Equality Constraints." IEEE International Conference on Robotics and Automation, 1996, Silver Spring, Maryland.

R. Hooper, D. Tesar, D. Sreevijayan, J. Geisinger, C. Kapoor. "A Four-Level Mechanical Architecture for Fault-Tolerant Robots." Journal of Reliability Engineering and System Safety, Volume 53, Number 3, 1996, Pages: 237-246.

R. Hooper, C. Kapoor, D. Tesar. "Decision Making Software for Dual-Arm Operations in Nuclear Facility Decontamination and Dismantlement." International Symposium on Robotics and Manufacturing, 1996.

R. Hooper, "A Number of Simulated Robot Applications." 1996 IEEE International Conference on Robotics and Automation." April 1996, Video Proceedings.

R. Hooper, S. Sreenivasan. "Using Telescience to Enrich Engineering Education." University of Texas Academic Development, September 1996.

C. Kapoor, N. Pettus, R. Hooper, D. Tesar." Computer Considerations for Advanced Robotics." Proceedings of The 1996 ASME Design Engineering Technical Conferences and Computers in Engineering Conference, Irvine, California, August 18-22, 1996.

C. Kapoor, N. Pettus, R. Hooper, D. Tesar. "Hardware and Software Considerations for Advanced Robotics." Proceedings of The 1996 Symposium on Ship Building, 1996, San Diego, California.

D. Tesar, J. Chladek, R. Hooper, D. Sreevijayan, C. Kapoor, J. Geisinger, M. Meaney. G.

Browning, K. Rackers. "Advanced Development for Space Robotics with Emphasis on Fault-Tolerance." 29th Aerospace Mechanism Symposium, May 17-19, 1995.

R. Hooper, D. Tesar. "Motion Coordination Based on Multiple Performance Criteria with a Hyper-Redundant Serial Robot Example." Proceedings of the 1995 IEEE International Symposium on Intelligent Control, 27-29 Aug. 1995, Pages: 133 – 138.

D. Tesar, C. Kapoor, R. Hooper. "Advanced Digital Control Technology for Precision Machines in Manufacturing." International Symposium on Measurements and Control in Robotics, Bratislava, Slovakia, 1995.

D. Tesar, R. Hooper. "Final Report – U.S. Department of Energy Nuclear Energy University Program in Robotics for Advanced Reactors." Grant Number DE-FG02-86NE37966, April 1995.

R. Hooper. "Multicriteria Inverse Kinematics for General Serial Robots." Thesis (PhD)—University of Texas at Austin, 1994.

R. Hooper, D. Tesar. "Computer-aided Configuration of Modular Robotic Systems." Journal of Computing and Control Engineering, Volume: 5, Issue: 3, June 1994, Pages: 137 - 142.

R. Hooper, K. Diller. "A Musculotendon Model Suitable for Use in Neuromusculoskeletal Control Simulation." International Conference on Bond Graph Modeling ICBGM'93, San Diego, SCS Publishing, Simulation Series, Vol.25, 1993, Pages: 333-338.

R. Hooper, D. Tesar, G. Browning. "Generalized Inverse Kinematics for N Degree-of-Freedom Robot Manipulator." Robotics and Machine Perception, February 1993, Page: 5.

R. Ambrose, D. Tesar, R. Ambrose. "An Experimental Investigation of Robot Actuator Performance." Proceedings of the Second International Symposium on Measurement and Control in Robotics, November 1992, Pages: 623 – 630.

R. Hooper, "Intelligent Robot Control." DOE/NE Robotics for Advanced Reactors Student Conference, Oak Ridge National Laboratory, January 1992.

R. Hooper. "The Interactive Assembly and Computer Animation of Reconfigurable Robotic Systems." Thesis (M.S. in Engineering) -- University of Texas at Austin, 1990.